Phase II Ex Ante Review Findings

Table 1-1: Project Information

IOU	PGE
Application ID	2K12078508-X061
Application Date	10/18/2011
Program ID	TBD
Program Name	2011 Customized Retrofit and Demand Response
Program Year	2011
Itron Project ID	X061
IOU Ex Ante Savings Date	TBD
ED Measure Name	Carbon monoxide controls on garage exhaust fans
Project Description	Install 35 carbon monoxide sensors and VFD controls on garage exhaust fan with on/off controls
Date of ED Review(s)	03/19/2012 & 04/08/2012
Primary Reviewer and Firm	Kunal Desai/Itron
Review Supervisor and Firm	Vishy Tirumalashetty/Itron
Type of Review (Desk, On-site, Full M&V, Tool)	Desk Review
ED Recommendation	Conditional approval subject to post-installation M&V and savings true up

Measure Description

This project is to install carbon monoxide sensors on 35 garage exhaust fan motors with on-off controls. This will enable the fans to run on demand basis versus on schedule. Energy savings will result from reduced fan runtime.

Summary of Review

ED reviewed the following Phase II IOU provided documentation: Revised CCT calculation, PGE review form v1.1, Pictures of motor nameplate data, ASHRAE CO level recommendation pdf document, EMS screenshot of fan schedule, Vendor energy savings calculation for garage sensors and pictures of West and East tower fan equipment schedule.

Initial project application claimed to retrofit 38 garage fan motors with Carbon monoxide sensors which had a pre-installation run time of 16 hours a day 7 days a week. IOU's inspection determined that both the actual count of fans and run time hours were incorrect. IOU inspection reported a count of 35 garage exhaust fans, which were to be retrofitted with a run time of 12 hours on weekday and 9 hours on the weekend.

IOU data request response clarified the sequence for the new CO controls. Fan operation will be on demand basis and will not be subjected to existing schedule. They will run when a threshold of 25 ppm is exceeded for 2.5 minutes and then run as long as necessary to bring the CO to 15ppm. Load factor reading were taken on only one 15 HP fan motor. The IOU data response stated that additional spot measurements not conducted since several fans share the same airshaft: stopping one fan to unlock the power switch creates negative pressure due to the other running fans sharing the shaft, causing the stopped fan to rotate backwards and leading to a potential hazardous situation when restarting the fan motor.

The energy savings and peak demand reduction for this project are estimated to be 1,006,700 kWh and 250 kW, respectively. The incentive seems to be capped at 50% project cost and is calculated at $70,875.00.

Review Conclusion

ED conditionally approves the savings for this proposed project and requests an opportunity to review savings estimate after post-installation measurements are taken. ED suggests additions be made to the current M&V plan submitted by the IOU. The M&V plan should include post installation trending (1 or 2 months) for operating hours and fan kW along with (1 or 2 months) post installation billing data on the exhaust fans.

Summary of ED Requested Action by the IOU

In order to complete an ex ante review the ED recommends that the IOU submit the following documentation due on **4/24/2012** (or within 14 days of submittal of DR).

1. Provide a lighting schedule from the EMS to verify weather fan and light operate at the same time for billing data analysis.
2. Please clarify if the EMS system will monitor the CO controlled fan run time post installation.
3. Provide post installation billing data from (1-2 months) when it is available.

Table 1-2: Project Overview

Description	IOU Proposed Ex Ante Data	ED Recommendations
Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures)	Add on measure	Add on measure
Project Cost Basis (Full Cost, Incremental Cost)	Full cost	Full cost is acceptable.
RUL (Early retirement projects only, otherwise N/A (not applicable))	Not provided	NA
EUL	EUL of motors from DEER database is 15 years. EUL of CO sensors is estimated at 15 yrs by the vendor.	15 years based on DEER 2008 for energy management system. EUL may be limited by the RUL of motors and fans. Savings beyond the RUL of motors and fans would be based on prevailing standard practice.
First Year kWh Savings	1,006,700	TBD after post installation M&V
First Year Peak kW Savings	250	TBD after post installation M&V
First Year Therms Savings	N/A	N/A

Description	IOU Proposed Ex Ante Data	ED Recommendations
kWh Savings (RUL Period)	Not provided	TBD
Peak kW Savings (RUL Period)	Not provided	TBD
Therms Impact (RUL Period)	N/A	N/A
kWh Savings (EUL thru RUL Period)	Not provided	TBD
Peak kW Savings (EUL thru RUL Period)	Not provided	TBD
Therms Savings (EUL thru RUL Period)	N/A	N/A
Annual Non-IOU Fuel Impact (RUL Period)	N/A	N/A
Annual Non-IOU Fuel Impact (EUL thru RUL Period)	N/A	N/A
Net-to-Gross Ratio	Not provided	An ex ante NTG interview may be warranted

Table 1-3: Detailed Review Findings

Reviewed Parameter	Analysis
Project Gross Savings Baseline (for early retirement projects only, include RUL through EUL baseline)	IOU Proposal: Add on measure
	ED Assessment: Add on measure acceptable
	ED Recommendation: Add on measure
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Full Cost provided
	ED Assessment: Full cost
	ED recommendation: None at this time
RUL (required for early retirement projects only, otherwise n/a)	IOU Proposal: None
	ED Assessment: N/A
	ED recommendation: N/A
EUL	IOU Proposal: EUL of motors from DEER database is 15 years, so RUL of motors is 15/3 = 5 yrs. EUL of CO sensors is estimated at 15 yrs by the vendor.
	ED Assessment: EUL may be limited by the RUL of motors and fans. Savings beyond the RUL of motors and fans would be based on prevailing standard practice.
	ED Recommendation: 15 years based on DEER 2008 for energy management system.
Savings Assumptions	IOU Proposal: Energy savings calculation spreadsheet provided
	ED Assessment: Energy saving calculation in the post installation case account for 90% reduction without any supporting documentation. Pre installation load factor for exhaust fans was only sampled at one 15 HP motor.
	ED Recommendation: ED suggests post installation M&V for exhaust fan operating hours and kW along with post installation billing data to

Reviewed Parameter	Analysis
	true up the estimates.
Calculation Methods/Tool review	IOU Proposal: Energy savings calculation spreadsheet provided
	ED Assessment: Calculation methodology acceptable
	ED Recommendation: None
Pre- or Post-Installation M&V Plan	IOU Proposal: A post installation inspection will be conducted. Short term monitoring of fan power. Savings might be adjusted based on post installation monitoring.
	ED Assessment: Additional M&V activity is recommended to ensure the correct baseline estimate for load factor is used along with post installation operating hours for the exhaust fans.
	ED Recommendation: ED suggests post installation M&V trending for at least 1 or 2 months for exhaust fan operating hours and kW along with post installation billing history to true up the estimates.
Net-to-Gross Review	IOU Proposal: Not provided
	ED Assessment: Assessment not completed
	ED Recommendation: An ex ante NTG interview may be warranted